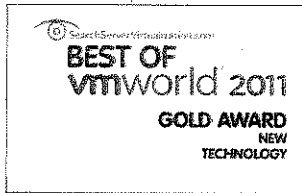


VMware Backup:

Veeam Backup & Replication vs. Legacy Backup Tools

Top 10 Reasons to Choose Veeam



"A major reason that organizations still hit these bumps on the backup and recovery road: They use the same products for both physical and virtual server backup, when we all know that virtualization requires a fundamentally different approach."



Veeam Backup & Replication™ isn't the only way to back up your virtual environment... but it is the best way.

While many legacy backup vendors can now perform image-based backups of virtual machines (VMs), only Veeam fully leverages the virtual environment to reduce the cost and increase the value of backup—not just a little, but a lot.

As a result, Veeam® provides fundamental and far-reaching advantages over legacy backup tools. Table 1 summarizes the top 10 advantages.

Better by design

Unlike legacy backup tools that were built for the physical world and simply retrofitted to support VMs, Veeam Backup & Replication was designed from the ground up specifically for virtualization. By fully embracing the virtual paradigm, Veeam overcomes the fundamental shortcomings of traditional backup.

For example, granular recovery—the ability to recover individual emails, directory objects or database records—is a common recovery scenario. (Some would argue that it's *the most* common recovery scenario.) Traditional approaches require special agents and backups in order to perform granular recovery. A specific agent is required for each application and operating system (OS).

These agents are sensitive to changes in the internals of the applications they support, and must be tested—and often updated—for new application patches and releases. As a result, granular recovery with traditional approaches is:

- Expensive: for the vendor to develop and maintain and, by extension, for the customer to license
- Limited: available for just a few applications
- Inflexible: often becoming a barrier to application upgrades

But Veeam has leveraged virtualization to change all that and make granular recovery inexpensive and robust. The idea is actually quite simple: Since it's easy to start up a VM on the fly, what if you could run the application from the disk-based backup (in an isolated environment, of course) and retrieve the items you need? That way, you could perform granular recovery for any virtualized application, any time, without special agents or backups.

It sounds simple enough—it is easy to create VMs, and it's relatively straightforward to configure an isolated virtual network. But what about the time it takes to provision storage and extract the backup? And what happens if the VM running from the backup interferes with the VM running in production?

This is where Veeam takes a deceptively simple concept and turns it into a powerful new reality.

Veeam's patent-pending vPower® technology makes it possible to run a VM directly from a compressed and deduplicated backup file. There's no need to provision storage or extract the backup—you simply run the VM directly from the backup file on regular backup storage, but without making any changes to the backup file itself.

Veeam also provides Virtual Lab technology that creates an isolated environment where backup VMs can run without risk of interfering with the production environment. So you can automatically test and verify the recoverability of backups and instantly retrieve individual application items.

And when you need to recover a VM in the production environment, you can do that, too. Just run the VM from the backup to restore service to users in less than a minute.

Instant VM Recovery, Universal Application-Item Recovery and SureBackup® recovery verification are just a few examples of how Veeam leverages virtualization and Veeam innovation to change what you should expect—and what IT stakeholders and regulators will ultimately demand—from backup.

As agile as virtualization itself

Legacy backup tools are large, complex systems that attempt to cover a lot of bases—physical and virtual, and often data protection, data management and data archiving, too. Because VMware backup is just one part of a much larger system, it can be quite some time before the legacy backup vendors support new versions of VMware... and longer still before customers are able to upgrade their production deployments of these complex systems.

Veeam Backup & Replication, on the other hand, is specifically focused on virtualization. As a result, it typically provides new platform support months before the legacy backup vendors. For example, Veeam was the first to support the new vSphere APIs for Data Protection (VADP) with the release of Veeam Backup & Replication 4.0 in October 2009. Some legacy backup tools took more than a year to add support for VADP.

And because Veeam Backup & Replication has fewer moving parts, it's much easier for customers to upgrade. As a result, Veeam customers are often on the latest version of VMware a year or more before their peers who are encumbered by their organizations' decision to apply old tools to the new virtual environment.

Look closely

Legacy backup tools have their roots in the physical world, and some capabilities are not available with newer image-based backups. For example, some legacy backup tools might offer synthetic full backups for traditional file-based backups, but don't have this capability for image-based VM backups. Likewise, OS-level replication or log-based replication for select applications might be available, but not image-based VM replication.

About this comparison

This comparison was created at the request of Veeam customers and prospects to help them evaluate their options for VMware backup. While every attempt has been made to provide an accurate comparison, please recognize that Veeam's access to information about competing products is limited.

To the best of our knowledge, the information is correct as of the date of publication.

We would appreciate your feedback. If you see something here that's different from what you know or have experienced with the legacy backup tools, please let us know.

	Veeam Backup & Replication v6 Enterprise Edition	Legacy Backup Tools
1. <u>Instant VM recovery</u>	✓	✗
2. <u>Application-item recovery</u>	Any application	Select applications only
3. <u>File-level recovery</u>	Any OS and file system	Select file systems only
4. <u>Automated recovery verification</u>	✓	✗
5. <u>No agents to deploy or maintain</u>	✓	✗
6. <u>Single backup</u>	✓	✗
7. <u>Synthetic full backups</u>	✓	✗
8. <u>Replication</u>	Included	Extra cost (if available at all)
9. <u>Hyper-V support</u>	Advanced	Basic
10. <u>Cost</u>	Simple, affordable	Complex, expensive

Table 1. When it comes to image-based backup of VMs, Veeam Backup & Replication provides numerous advantages—both technical and commercial—over legacy backup tools.

1

Instant VM recovery

Veeam's vPower technology runs a VM directly from a compressed and deduplicated backup file on regular backup storage. This patent-pending, groundbreaking technology eliminates the need to extract the backup and copy it to production storage—you simply start the VM from the backup. So if a VM goes down, you can restart it on any host in a matter of minutes.

In fact, in an independent lab test commissioned by Veeam, it took just 36 seconds to restart a Microsoft Exchange server from a backup file and publish it on the production network.

Veeam Instant VM Recovery is like a "temporary spare" for your VMs. To complete the recovery, use Storage vMotion or Veeam Quick Migration to migrate the VM to production storage with no interruption in service or impact on users.

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2

Application-item recovery

vPower also enables quick recovery of individual objects from any virtualized application, on any OS. For example, you can recover individual items from your corporate email system, individual rows or tables from an Oracle database running on Solaris, and individual customer records from a Unix-based CRM system.

We call it U-AIR®, or Universal Application-Item Recovery. It's a brand-new, patent-pending solution to the age-old problem of what to do when users accidentally delete important emails or scripts incorrectly update records.

U-AIR addresses the limitations of existing object-level recovery methods. U-AIR is:

- Inexpensive: doesn't require additional agents, backups or software tools.
- Universal: works with any virtualized application and the application's native management tools and permissions.
- Durable: not tied to application internals so is easy to maintain and works seamlessly with new application patches and releases.

In addition, U-AIR uses only vendor-supported APIs. It does not reverse engineer the application's data schema or semantics in order to extract or modify application data. Some object-level recovery methods do this, which can void vendor support agreements. (For example, see Microsoft KB article 904845.)

Some legacy backup tools offer object-level recovery, but only for a few specific applications. Furthermore, special agents and separately created backups or metadata is required. The additional backup processing can be quite resource-intensive and/or slow, so customers often limit their use of object-level backup and recovery—for example, only do granular backups of executives' mailboxes. And if the special processing fails for any reason (even if the backup job reports success), you cannot recover application items at all.

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3

File-level recovery

Unlike traditional file-based backups, image-based backups allow for quick recovery of an entire VM on any host, without having to rebuild the system from scratch. But recovery of individual guest files can be a challenge.

From the very beginning, Veeam has provided file-level recovery from image-based backups. In fact, Veeam invented Instant File-Level Recovery (IFLR), first available for Windows and then for Linux, Unix and Mac file systems using patent-pending Veeam technology based on an IFLR helper appliance.

With support for 15 different file systems, Veeam already held a substantial lead over other backup tools. And with new patent-pending vPower technology, Veeam has pulled further ahead, with the ability to restore individual files from a regular image-based backup in seconds to the latest state or any point in time, on any OS and file system.

Some legacy backup tools offer file-level recovery for Windows (and in some cases, Linux) VMs, but special indexing of each backup is typically required. If you forget to enable the special indexing or if your environment can't tolerate the additional processing, file-level recovery is not possible. And file-level recovery for many OSs and file systems is not possible at all.

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4 Automated recovery verification

Even if a backup job completes successfully and the backup file passes its integrity check, you might not be able to recover from the backup. For example:

- The system you're backing up may be in an unbootable state—for example, a critical configuration file might have been deleted or corrupted.
- There might be update or reconfiguration tasks pending reboot.
- A hot backup might have captured the system or application data in an inconsistent state.

The only way to be sure that you can recover from a backup is to do a test restore. All the backup vendors know this. But testing every backup was simply not possible... until now.

Veeam SureBackup allows you to verify the recoverability of your backups—not just a few selected backups, but every backup, of every virtual machine, every time.

This patent-pending capability automates the recovery verification process, using available resources in the existing production or test environment and without affecting your backup window. During recovery verification, it creates a VM in an isolated environment and runs it directly from the backup file. It starts the VM, boots the OS and confirms that applications inside the VM are running normally. SureBackup can even test a group of dependent VMs (such as a DNS server, domain controller and Exchange server).

You no longer have to settle for backups that “might work” or “should work”—instead, you can rest easy knowing that your backups actually do work.

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5 No agents to deploy or maintain

Agents add cost and complexity to backup. With Veeam, there are no agents for you to license or to deploy, manage, monitor and update on hosts or VMs.

This does not mean that Veeam lacks features—such as application-aware backups, granular application-item recovery, Windows guest file system indexing, and 1-click file restore—that other backup tools require agents to deliver. Veeam provides all these features *and more* without agents for you to manage.

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6 Single backup

With Veeam, you only ever need one backup—regardless of what OS or applications the VM is running, or what kind of recovery operation you might need to perform. Full VM recovery, granular application-item recovery and instant file-level recovery are all available from the same image-based backup for any virtualized application and any guest OS.

In addition, there's no need to create a second file-based backup “just in case.” With recovery verification and advanced application-aware processing, you can rely on Veeam image-based backups.

With legacy backup tools, it's often necessary to take multiple backups. There are several reasons for this. First, many organizations don't trust image-based backups created by these tools. These organizations need the streamlined recovery that image-based backups offer in order to meet recovery time objectives (RTOs), but they aren't comfortable relying solely on image-based backups. So they take a “belt and suspenders” approach and create image-based backups as well as traditional file-based backups of their VMs.

Some legacy backup tools also require a file-based backup in order to truncate application logs.

In addition, multiple backups are required for granular recovery. For example, depending on the guest OS, a second file-based backup is required in order to recover individual files. (Theoretically, another option would be to restore the entire VM and then retrieve the files you need, but that would take a big chunk of storage and several hours to complete—too much time for users to wait and for IT to be pulled off other tasks.)

Likewise, application-item recovery requires its own special backup or separately created metadata.

All the extra backup processing consumes precious IT resources and manpower. Already, organizations complain that backups don't complete in the designated window, consume too much storage and network bandwidth, and take too much time to set up, troubleshoot and maintain. Extra backups and backup processing only add to the problem.

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7

Synthetic full backups

Veeam offers a choice of synthetic and traditional full backups.

Synthetic full backups eliminate the need for periodic full backups by creating new full backups from incremental backups. This "forever incremental" approach to backup is both proven and desirable because it reduces load on the production environment. In fact, forever incremental is the only way to protect very large VMs that would otherwise take the better part of a day—or even longer—to back up (even with the fastest and most efficient backup tool). Likewise, forever incremental is essential when backing up offsite over a WAN. Thus, for these common scenarios, synthetic full is a must-have capability.

Synthetic full backup can also reduce backup storage requirements by 60 percent or more. For example, say you have a 100GB VM and your organization's policy requires you to keep 30 days of backups on disk. Assuming 5 percent of the data changes daily, if you were to take weekly full backups and daily incrementals, you would need 655GB of backup storage. But with a single synthetic full backup and reverse incrementals, you need only 250GB of backup storage—a savings of 62 percent.

Synthetic fulls also reduce network traffic. For example, in the scenario above, synthetic full backup can reduce network traffic by 62 percent.

Although some legacy backup tools offer synthetic full backups for file-based backups, they don't offer synthetic fulls for image-based backups.

Veeam further reduces network traffic and storage consumption with built-in deduplication. With the volume of data growing every day and storage being one of the most expensive IT assets, deduplication is an essential capability for any backup tool. VMware backup is unique in that it is done at the image level. Because many VMs have the same operating system and/or applications installed, traditional backup tools end up reading, transferring and storing the same data over and over again.

Veeam's answer to this is inline source-side, block-level deduplication. This functionality typically results in a 10x reduction in network traffic and backup storage consumption. Veeam has provided deduplication since version 1—in fact, Veeam was the first vendor to implement deduplication in a VMware backup product. In addition, Veeam does not charge extra for deduplication.

While some legacy backup tools offer deduplication, they typically charge extra (quite a bit extra) for it.

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8 Replication

Replication refers to maintaining an up-to-date copy of a VM image on a standby host so that if the VM goes down, it can quickly be restarted at full capacity on the standby host.

Replication in virtual environments is particularly attractive because VMs can be replicated to low-cost storage and the target VM does not need to be powered on. So unlike traditional CDP (continuous data protection), near-CDP in the virtual environment is quite affordable, offering greater protection for any virtualized application. Near-CDP in the virtual environment is also quite flexible, with the ability to replicate and fail over individual VMs.

Veeam offers 2-in-1 backup and replication so that customers can take full advantage of the opportunities for enhanced data protection that virtualization provides, including near-CDP.

Some legacy backup tools offer OS-level replication or log-based replication for some applications, but they do not offer image-based replication. Others include a capability they refer to as replication, but it is not replication in the usual sense of the word. Rather, “replication” is used to mean making multiple copies of a backup—that is, replicating the backup (not the source VM) to another storage device.

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9 Hyper-V support

Many organizations are considering Microsoft Hyper-V for some virtualized workloads (now or in the future). For these organizations, Veeam offers support for both VMware vSphere and Microsoft Hyper-V from a single console. Veeam even offers the flexibility to move Veeam licenses between VMware and Hyper-V hosts at no charge. So as your virtual environment changes, Veeam has you covered.

Some legacy backup tools only provide basic “checkbox” functionality for Hyper-V. For example, incremental backups may not be supported, and restoring a VM to a different host may be a cumbersome process. Not so with Veeam.

Veeam provides advanced support for Hyper-V, including:

- 2-in-1: backup and replication
- Change block tracking for 20x faster backups and near-continuous data protection
- Full support for VMs on Cluster Shared Volumes (CSVs)
- All of Veeam’s space-saving features, including synthetic full backups and built-in compression and deduplication.
- 1-Click File Restore—you can even delegate file restores to help desk staff
- No agents for you to deploy or maintain

vPower and Instant VM Recovery will also be available for Hyper-V in Veeam Backup & Replication 6.1 (available Q2 2012).

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10 Cost

Veeam Backup & Replication is much simpler and less expensive to license than legacy backup tools, easily coming in at a fraction of the cost. So even if you’re getting a big discount from your legacy backup vendor, it’s still possible to justify the switch to Veeam, even without considering the differences in functionality (which are significant) and savings in storage, network bandwidth, server hardware and manpower.

Veeam truly embraces the virtual paradigm—both from a technical perspective and from a commercial perspective. Pricing is based solely on host processing power—there are no per-agent or per-application fees. And first-year maintenance is included in the license fee.

Legacy backup customers complain that not only are those tools expensive, but the pricing is quite complicated, with many separately licensed agents, features and components (backup servers, management consoles, etc.). In some cases, simpler per-terabyte pricing is available, but it is typically quite expensive.

When there are changes in the virtual environment, these customers report that it can take days or even weeks to determine the correct licensing, effectively robbing them of the agility they sought to achieve through virtualization.

With Veeam, backing up additional hosts is a simple matter of adding more CPU sockets. The backup infrastructure can be expanded or reconfigured as needed at no additional charge. There's never a fee for the central administration component. And there is no long list of add-ons—just two editions for you to choose from. With Veeam, pricing is affordable and predictable.

Veeam also offers low total cost of ownership (TCO). For example, customers report that Veeam Backup & Replication is much easier to use and maintain. Backup and recovery operations are easy to understand and execute, and backups run reliably—there's no need to babysit backup jobs. And there are no agents to monitor or maintain.

In addition, Veeam provides greater return on investment (ROI). By offloading backup processing from production hosts, Veeam lets you maximize server consolidation for greater cost savings. And with built-in deduplication, compression, whitespace removal, support for synthetic full backups and no need for multiple backups, Veeam reduces the amount of network bandwidth and storage needed for backups.

Interested in knowing what you could save? [Contact a Veeam representative](#) for a free ROI analysis.

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Summary

Legacy backup tools are typically considered for VMware backup by organizations already using those tools. While it might be convenient to back up everything—both physical and virtual—with one tool, what is the cost of doing so? What do you lose by choosing single solution over best of breed?

As this document illustrates, you lose a lot, especially considering the patent-pending vPowered capabilities in Veeam Backup & Replication. Plus, Veeam is considerably less expensive to own and operate.

Virtualization offers the opportunity to significantly enhance data protection and reduce costs, but you need the right tool to turn the opportunity into reality. Already, Veeam has made enhanced data protection a reality for more than 35,000 customers. And with vPower, Veeam has taken backup to a whole new level and is using virtualization to do things never before possible.

For more information about how Veeam Backup & Replication can provide you with the best backup and big cost savings, [contact a Veeam representative](#) today.

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